

SYNOPSIS OF TWO GENERA OF DELPHACIDAE, WITH DESCRIPTIONS OF THREE NEW SPECIES FROM CHINA (HEMIPTERA, FULGOROIDEA)

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Abstract The present paper deals with two Chinese delphacid genera, *Neoterthrona* Yang et Yang and *Paraconon* Yang et Yang, and five species of the genera totally. Among which three species new to science, viz. *Neoterthrona rata* sp. nov., *Neoterthrona tubercularis* sp. nov. and *Paraconon sinensis* sp. nov. are described and illustrated. Key to separate all species of the two genera are given respectively. The type specimens are deposited in the Entomological Museum, Northwest A & F University, Yangling, Shaanxi, China (NWAUF).

Key words Hemiptera, Delphacidae, *Neoterthrona*, *Paraconon*, new species, China.

The Chinese delphacid genera *Neoterthrona* and *Paraconon* belong to the tribe Delphacini, Delphacidae, which were established by Yang et Yang in 1989 to accommodate a single species respectively, *N. spinosa* and *P. membranacea* from Taiwan, China. In the present paper, the two genera are studied and generic characters are redescribed, three new species, *Neoterthrona recta* sp. nov. (Yunnan Province), *Neoterthrona tubercularis* sp. nov. (Hainan Province) and *Paraconon sinensis* sp. nov. (Guangdong Province) are described and illustrated. Key to separate all species of the two genera are provided respectively.

The morphological terminology follows Yang et Yang (1986). The type specimens are deposited in the Entomological Museum, Northwest A & F University, Yangling, Shaanxi, China (NWAUF).

1 *Neoterthrona* Yang et Yang, 1989

Neoterthrona Yang et Yang, 1989. *NSC Spec Publ.*, 6: 303. Type species: *N. spinosa* Yang et Yang, 1989.

Diagnosis. Head including eyes narrower than pronotum. Vertex slightly longer submedially than wide at base or nearly the same, submedian carinae not really uniting at apex, basal compartment wider at base than greatest length about 1.5: 1.0. Y-shaped carina distinct. Frons longer in middle line than wide at widest part about 2.0-2.4: 1.0. Ocelli present. Postclypeus wider at base than frons at apex. Antennae cylindrical, surpassing frontoclypeal suture, basal segment longer than wide, shorter than the second. Pronotum with lateral carinae reaching or not attaining hind margin. Forewings long and narrow, transverse

vein located 2/5 at apex, all veins speckled. Spinal formula of hind leg 5-7-4. Post-tibial spur with about 20 teeth.

Anal segment of male ring-like, lateroapical angles each produced into a stout spinose process. Pygofer in profile distinctly longer ventrally than dorsally, ventrocaudal portion produced caudad. Medioventral process long and single, ventral angles each produced. Phallus ir shaped. Suspensorium fused with phallus, dorsal arms long. Diaphragm extremely narrow, dorsal margin deeply incised. Genital styles long and slender, sinuate, strongly divergent.

Distribution. China (Taiwan, Hainan, Yunnan).

Key to species (♂)

1. Anal segment of male with lateroapical angles parallel produced ... 2
Anal segment of male with lateroapical angles widely separated produced *N. tubercularis* **sp. nov.**
2. Phallus armed with a large tooth at dorsal left
..... *N. spinosa* **Yang et Yang**
Phallus smooth and without tooth *N. recta* **sp. nov.**

Neoterthrona recta **sp. nov.** (Figs 1-9)

Male (macropterous). Body length including tegmen 3.8 mm; tegmen length 3.2 mm.

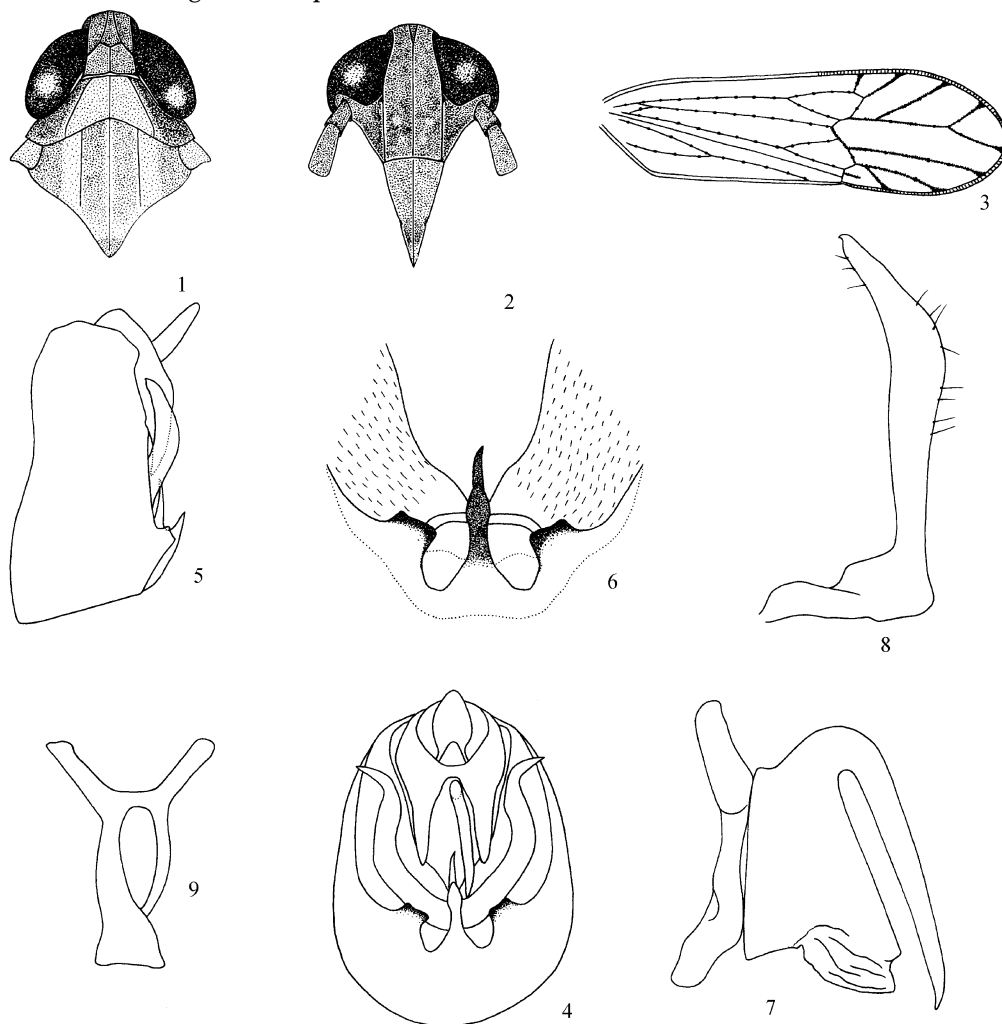
General colour yellowish brown. Vertex, pronotum with area beneath eyes, frons, genae, postclypeus and antennae brown, frons with visible yellowish brown spots. Ocelli reddish brown. Eyes black. Fore and middle femora with brownish longitudinal stripes. Tegmen subhyaline, all veins speckled, apical veins dark brown.

Vertex slightly longer submedially than wide at base about 1.2: 1.0, submedian carinae originating

from basal 2/5 of lateral carinae. Frons in middle line longer than wide at widest part about 2.4:1.0, widest above level of ocelli, median carina forked at base. Postclypeus wider at base than frons at apex, as long in middle line as wide at base. Antennae surpassing frontodypeal suture, basal segment longer than wide about 1.5:1.0, shorter than the second about 1.0:1.8. Pronotum with lateral carinae attaining hind margin. Post-tibial spur with about 24 teeth.

Anal segment of male with lateroapical angles each produced ventrad into a stout and long process, parallel. Pygofer in posterior view with opening nearly as wide as long. Medioventral process long, reaching to level of processes of anal segment, in profile median

portion with a big tooth, production of ventral angles broad and stout, apex truncated, strongly sclerotized and pigmented on dorsal half. Phallus r-shaped, laterally compressed, extremely broad at base, basal tip membranous, attenuate to dorsad and then reflected caudad, apical half straight and tapering gradually. Suspensorium fused with phallus, dorsal arms long. Diaphragm extremely narrow, with dorsal margin deeply concave. Opening for genital styles with dorsal and lateral margins nearly straight, ventral margin sinuate, middle part deeply concave. Genital styles long and slender, surpassing level of lateral margin of pygofer, sinuate, strongly divergent.



Figs. 1-9. *Neotethrona recta* sp. nov. 1. Head and thorax, dorsal view. 2. Head, ventral view. 3. Tegmen. 4. Male genitalia, posterior view. 5. The same, left lateral view. 6. Diaphragm of pygofer, posterior view. 7. Phallus and suspensorium, left side. 8. Genital styles, left side. 9. Suspensorium.

Holotype ♂, China, Yunnan, Xishuangbanna, Menglun, 21-30 Apr. 1974, coll. ZHOU Yao, YUAN Feng and HU Yir Yue.

Remarks. The new species is similar to *N.*

spinosa Yang *et* Yang, but can be distinguished from the latter by: 1) vertex slightly longer submeially than wide at base about 1.2:1.0; 2) frons in middle line longer than wide at widest part about 2.4:1.0, widest

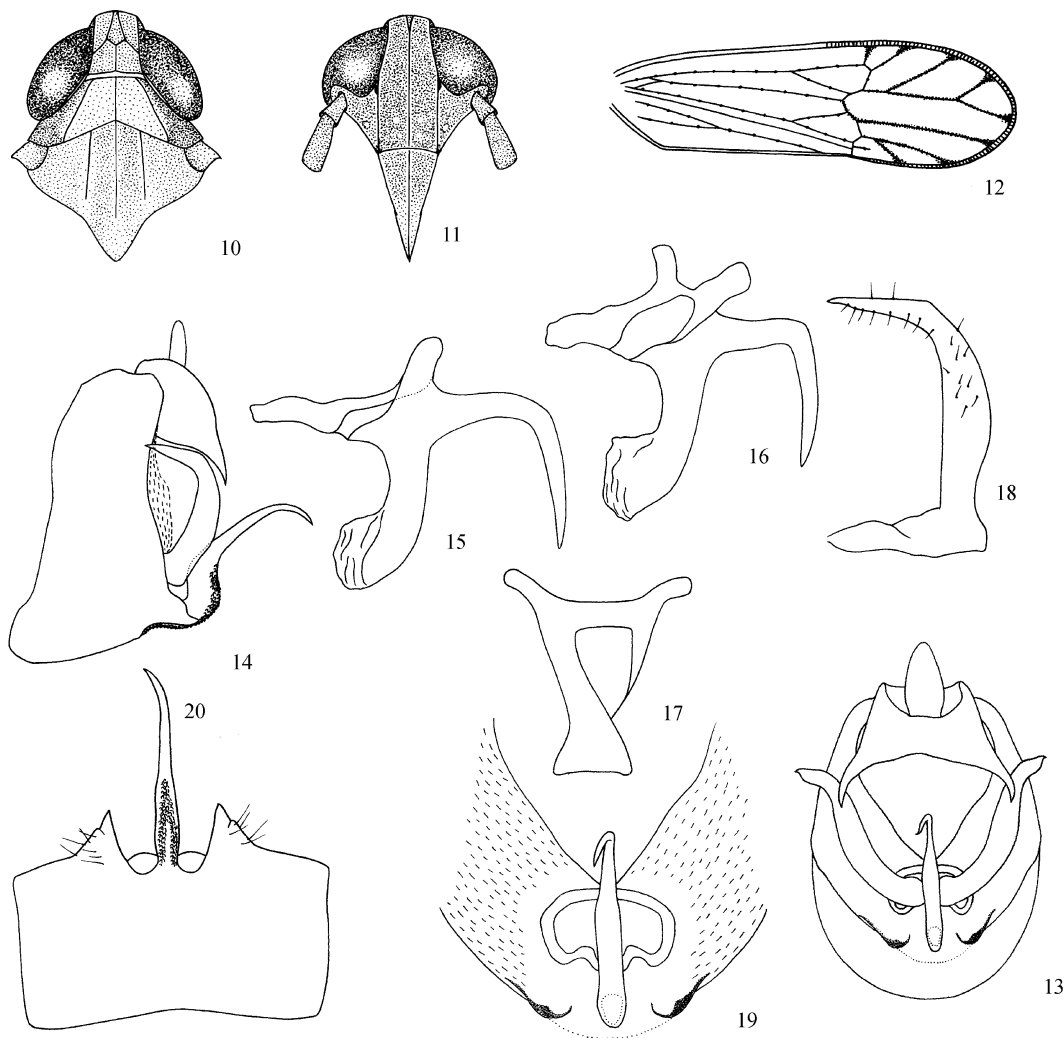
above level of ocelli; 3) pronotum with lateral carinae attaining hind margin; 4) phallus with the basal tip membranous, caudal reflection without a large tooth at dorsal left, apical half straight and tapering gradually, distal end not sinuate.

Etymology. The specific name is derived from the Latin word “*rectus*” (straight), and with combination

of the feminine suffix “-a”, which refers to the apical half of phallus straight.

Neoterthrona tubercularis **sp. nov.** (Figs. 10–20)

Macropterous form (♂). Body length 2.3 mm; body length including tegmen 3.4–3.7 mm; tegmen length 2.9–3.0 mm.



Figs 10–20. *Neoterthrona tubercularis* sp. nov. 10. Head and thorax, dorsal view. 11. Head, ventral view. 12. Tegmen. 13. Male genitalia, posterior view. 14. The same, left lateral side. 15. Phallus and suspensorium, lateral view. 16. The same, from different angle. 17. Suspensorium. 18. Genital styles, left side. 19. Diaphragm of pygofer, posterior view. 20. Pygofer, ventral view.

General colour yellowish brown. Vertex, pronotum with area beneath eyes, frons, genae, postclypeus and antennae brown, frons and genae with visible yellowish brown spots. Ocelli reddish brown. Eyes black. Fore and middle femora, tibiae with brownish longitudinal stripes. Tegmina sub-hyaline, apical veins dark brown.

Vertex slightly longer submedially than wide at base about 1.3: 1.0, submedian carinae originating from basal 2/5 of lateral carinae. Frons longer in

middle line than widest part about 2.3: 1.0, widest above level of ocelli, median carina forked at base. Postclypeus wider at base than frons at apex. Antennae with basal segment shorter than second about 1.0: 2.0. Pronotum with lateral carinae reaching hind margin. Post-tibial spur with about 22–26 teeth.

Anal segment of male with lateroapical angles widely separated, each produced ventrad into a large process. Pygofer in profile longer ventrally than dorsally, median portion of opening produced caudad,

in posterior view with opening longer than wide. Medioventral processes present, long and single, nearly reaching to level of process of anal segment, in profile basal half broad, with tiny tuberculiform process on its surface, and then tapering gradually till apex, apex curved and sharpen pointed, production of ventral angles stout, triangular from ventral view. Phallus ir-shaped, broad and membranous basally, curved subbasally and attenuate to dorsad, middle portion long and nearly straight, sub-apex curved ventrad, tapering till apex, apex sharpen pointed. Suspensorium fused with phallus, dorsal arms long. Diaphragm narrow, dorsal margin deeply concave. Opening for genital styles large, ventral margin sinuate, deeply concave at median part. Genital styles long and slender, surpassing level of lateral margin of pygofer, sinuate, strongly divergent.

Holotype ♂, China, Hainan, Jianfengling, 18 May 1983, coll. ZHANG Ya-Lin. Paratype 1 ♂, same as holotype.

Remarks. This new species can be distinguished from other members of this genus by: 1) anal segment of male with lateroapical angles widely separated, each produced ventrad into a large process; 2) medioventral processes with tiny tuberculiform process on its surface; 3) production of ventral angles stout, triangular from ventral view; 4) phallus curved subbasally, middle portion long and nearly straight.

Etymology. The specific name is derived from the Latin word "*tubercularis*", which refers to the characters of medioventral process.

2 *Paraconon* Yang et Yang, 1989

Paraconon Yang et Yang, 1989. *NSC Spe. Publ.*, 6: 109. Type species: *P. membranacea* Yang et Yang, 1989.

Diagnosis. Head including eyes as wide as pronotum. Submedian carinae of vertex not uniting at apex, Y-shaped carina distinct, basal compartment wider at base than greatest length about 2.0: 1.0. Frons longer in middle line than wide at widest part about 2.2-2.5: 1.0, median carina forked at level of ocelli. Postclypeus wider at base than frons at apex. Rostrum reaching beyond mesotrochanters. Ocelli present. Antennae reaching over middle of postclypeus, basal segment longer than wide and shorter than second about 1.0: 2.0. Pronotum with lateral carinae not attaining hind margin. Spinal formula of hind leg 5-7-4. Post-tibial spur with about 25 teeth.

Anal segment of male ring-like, lateroapical angles each produced into spinose process, or apical

margin with a distinct median process, laterobasal angles each produced caudad into a small process. Medioventral process broad and stout. Phallus stout and armed with tooth. Suspensorium Y-shaped. Diaphragm moderate. Genital styles rather short, divergent.

Distribution. China (Taiwan, Guangdong).

Key to species (♂)

1. Anal segment with median portion produced into a spinose process, laterobasal angles each produced caudad into a small process; apex of medioventral process not bifurcated ... *Paraconon sinensis* sp. nov.
Anal segment with lateroapical angles each produced into spinose process; apex of medioventral process distinctly bifurcated
..... *Paraconon membranacea* Yang et Yang

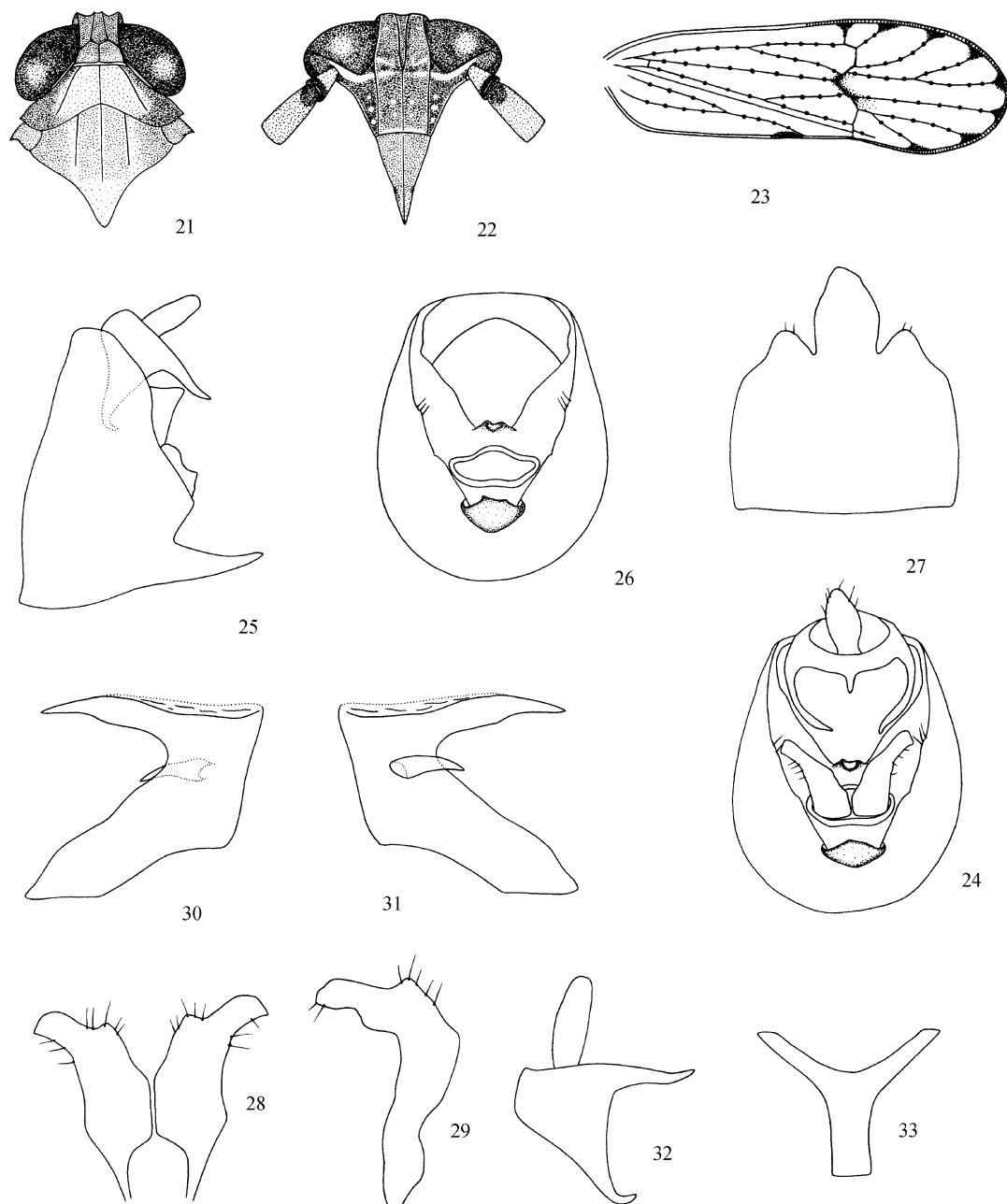
Paraconon sinensis sp. nov. (Figs 21-33)

Macropterous form (♂). Body length including tegmen 3.8 mm; tegmen length 3.1 mm.

General colour yellowish brown. Vertex, pronotum with area beneath eyes brown, frons and genae blackish brown, with a transverse yellowish stripe, frons and genae scattered with visible yellowish brown spots, apex of frons yellow. Eyes black. Antennae with apices of first segment and base of second black, rest of second segment grayish black. Fore and middle femora with brownish longitudinal stripes, mid-tibiae with black maculations. Tegmina grayish yellow, granulose black, ends of apical veins blackish brown, near apex of clavus at hind margin with a black marking.

Vertex almost as long submedially as wide at base. Frons with the widest above level of ocelli. Antennae with basal segment somewhat triangular and flat, longer than wide, shorter than second about 1.0: 2.0, second segment cylindrical. Post-tibial spur with about 24 teeth.

Anal segment of male with median portion produced in a spinose process, laterobasal angles each produced caudad into a small process. Pygofer in posterior view with opening longer than wide, lateral margins sinuate, in profile distinctly wider ventrally than dorsally. Medioventral process protuberant, fairly broad and stout, basal half nearly with the same width and apical half narrowed. Phallus very large, lamellate, apex strongly broad and nearly truncated, dorsal margin reflected in a large lobe, directed basad, its dorsal aspect membranous, right side with a large tooth subapically. Suspensorium Y-shaped, arms as long as stem. Diaphragm moderate, produced medially, dorsal margin slightly incised. Genital styles moderately long, divergent apically, slightly narrowed



Figs 21-33. *Paraconon sinensis* sp. nov. 21. Head and thorax, dorsal view. 22. Head, ventral view. 23. Tegmen. 24. Male genitalia, posterior view. 25. The same, left lateral side. 26. Diaphragm of pygofer, posterior view. 27. Pygofer, ventral view. 28. Genital styles, posterior view. 29. The same, left side. 30. Phallus, left side. 31. The same, right side. 32. Anal segment, left lateral view. 33. Suspensorium.

at apex, inner margin produced subapically.

Holotype ♂, China, Guangdong, Dinghu Mountain, 17 July 1985, coll. ZHANG Ya Lin.

This new species can be distinguished from *P. membranacea* Yang et Yang, 1989 by: 1) vertex almost as long submedially as wide at base; 2) pygofer in profile distinct longer ventrally than dorsally, not as long as dorsal; 3) anal segment with median portion produced into a spinose process, laterobasal angles each produced caudad into a small process; 4) medioventral

process protuberant, fairly broad and stout, apex not bifurcated; 5) characters of phallus; 6) genital styles narrowed at apex, inner margin produced subapically.

Etymology. The specific name refers to its Chinese distribution.

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and the tribe Tropidocephalini (Homoptera: Fulgoroidea). *Taiwan Mus. Spec. Publ.*, 6: 1-79.

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中国飞虱科二属分类概要及三新种记述 (半翅目, 蜡蝉总科, 飞虱科)

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摘 要 对分布于我国南方的飞虱科两个属: 细突飞虱属 *Neoterthrona* Yang *et* Yang 及等胸飞虱属 *Paraconon* Yang *et* Yang 进行了分类概要, 修订了 2 属的属征, 并记述 3 个新种: 直茎细突飞虱 *Neoterthrona recta* sp. nov., 具瘤细突飞虱 *Neoterthrona tubercularis* sp. nov. 和中华等胸飞虱 *Paraconon sinensis* sp. nov.。文中分别给出了 2 属所有种的检索表。新种模式标本保存于西北农林科技大学昆虫博物馆。

关键词 半翅目, 飞虱科, 细突飞虱属, 等胸飞虱属, 新种, 中国.

中图分类号 Q969.35